

CLAIMS

1. A plugged honeycomb structure comprising:

partition walls arranged in such a manner as to  
form a plurality of cells extending from one end face to  
5 the other end face through an axial direction;

an outer peripheral wall which surrounds an outer  
periphery of the partition wall; and

plugging portions disposed in such a manner as to  
plug the cell in either end face,

10 characterized in that at least some of the plugging  
portions arranged in at least the vicinity of the outer  
peripheral wall protrude from the end face, and a tip of a  
protruding portion is substantially flat or has a moderate  
curved face.

15 2. The plugged honeycomb structure according to claim  
1, wherein some or all of the plugging portions arranged in  
a portion other than the vicinity of the outer periphery  
protrude from the end face, and the tip of the protruding  
portion is substantially flat or has the moderate curved  
20 face.

3. The plugged honeycomb structure according to claim  
1 or 2, comprising a plugging portion including a  
protruding portion including a portion whose sectional  
shape crossing the axial direction at right angles is  
25 substantially circular.

4. The plugged honeycomb structure according to claim  
1 or 2, comprising a plugging portion including a

protruding portion including a portion whose sectional shape crossing the axial direction at right angles is a substantially polygonal shape.

5. The plugged honeycomb structure according to claim 4, wherein the substantially polygonal shape has a shape whose corner portion has been cut into a linear or curved shape.

6. The plugged honeycomb structure according to any one of claims 1 to 5, comprising a plugging portion including a protruding portion whose sectional shape parallel to the axial direction is a substantially quadrangular shape.

7. The plugged honeycomb structure according to claim 6, wherein the substantially quadrangular shape is a shape whose corner portion has been cut into a linear or curved shape.

8. The plugged honeycomb structure according to any one of claims 1 to 7, wherein a maximum height from the end face to the tip of each protruding portion is substantially equal.

9. The plugged honeycomb structure according to any one of claims 1 to 8, wherein porosity of the protruding portion is smaller than that of another portion of the plugged honeycomb structure.

10. A method of manufacturing a plugged honeycomb structure comprising:

preparing a honeycomb structure comprising porous

partition walls arranged in such a manner as to form a plurality of cells extending from one end face to the other end face through an axial direction, and

5 a plugging step of plugging at least some of the cells in either end face,

characterized in that the plugging step includes: a masking sub-step of disposing a film on the end face in such a manner as to mask some of the cells; and a filling sub-step of filling a predetermined cell which is not  
10 masked with a plugging material, and the filling sub-step includes: filling the cell with the plugging material up to a height which is not less than a height equal to that of an upper face of the film.

11. The method of manufacturing the plugged honeycomb structure according to claim 10, wherein in the filling  
15 sub-step, the plugging material is applied at least twice.

12. The method of manufacturing the plugged honeycomb structure according to claim 10, wherein in the filling sub-step, the plugging material is applied once.

20 13. The method of manufacturing the plugged honeycomb structure according to claim 12, wherein the plugging material is a slurry including a liquid, and the liquid is a liquid which does not substantially penetrate into the partition walls.

25 14. The method of manufacturing the plugged honeycomb structure according to any one of claims 10 to 13, wherein in the masking sub-step, the film is disposed in such a

manner as to cover all the cells, and a hole is made in a portion of the film, corresponding to a predetermined cell.

15. The method of manufacturing the plugged honeycomb structure according to claim 14, wherein a hole is made in such a manner that periphery of the hole is raised in a thickness direction of the film.

16. The method of manufacturing the plugged honeycomb structure according to any one of claims 10 to 15, wherein the plugging material is a slurry containing a liquid, and viscosity of the slurry is in a range of 10 to 1000 dPa\*s.

17. The method of manufacturing the plugged honeycomb structure according to any one of claims 10 to 16, wherein the plugging material is a slurry containing at least one type selected from a group consisting of a powdered organic material derived from plant, powdered synthetic resin, powdered carbon-based material, hollow synthetic resin, solid normal-temperature liquid or gas material, high-melting material, porous material, and hollow inorganic material.

18. The method of manufacturing the plugged honeycomb structure according to any one of claims 10 to 17, wherein after filling the cell with the plugging material, volume of the plugging material is expanded, and the protruding portion is protruded from the filter end face.